

REMARKS

The Office Action dated September 12, 2003 and references cited therein have been carefully reviewed. In an effort to place the above-identified patent application in condition for allowance, Applicants have, by this amendment, canceled claims 1-15, 17, 25, 26, 28, 31, 32, 47, 49, 53, 66, and 68-70 without prejudice, amended claims 16, 18-24, 27, 29, 30, 33-37, 45, 46, 50-52, 54-56, 65, and 72, and added new claim 73.

Applicants noted that none of the foreign references cited in the Information Disclosure Statement mailed April 20, 2003 was considered by the Examiner. It is assumed that the Examiner did not consider the foreign references since an English translation or summary was not provided with the foreign reference. DE 2364458 is briefly described in the Background of the Invention. DE 3340067 is also briefly described in the Background of the Invention. A translation of the abstract of DE 3340067 is further enclosed herein. FR 2320345 is the foreign equivalent of US 4105503, which is enclosed herein. An English translation of the abstract of FR 886,880 is unavailable at this time, but if subsequently obtained, it will be then submitted. Applicants request consideration of the foreign references cited in the January 6, 2000 Information Disclosure Statement.

THE INVENTION

The present invention is directed to a simple device and method to ensure a sealed area outside the leveler door opening and thus preventing the emission of charging gases through such opening. The present invention discloses and claims a device to seal the leveler door opening of a coke oven chamber during top charging of the coking coal. The device is provided with a housing that is connectable to the leveler door opening so as to form a seal. The housing is also provided with an arrangement to seal the cross-sectional area of the opened leveler door and/or a region in

front of the opened leveler door. A regulatable or controllable exhaust fan is connected to the housing and a measuring location is provided for flow measurement about the leveler door.

THE SECTION 102 REJECTION

Claim 46 was rejected under 35 U.S.C. §102(b) as being anticipated by Richmond 4,264,263. Claim 46 has been amended to include the limitation of claim 47. Consequently, Richmond does not anticipate claim 46.

THE SECTION 103 REJECTION

The Examiner indicated that one or more of the pending claims were rejected under 35 U.S.C. §103(a) as being unpatentable over Richmond 4,264,263, DE 2364458, Laragione 5,925,829 and/or Trutzchler 3,859066.

A. Independent Claim 16

Claim 16 was rejected under 35 U.S.C. §103(a) as being unpatentable over Richmond 4,264,263 in view of DE 2364458 and Laragione 5,925,829. The Examiner stated that Richmond 4,264,263 was absent any teaching of a regulatable exhaust fan connected to the housing of an oven coke chamber and a flow measuring mechanism at least partially positioned in the coke housing that is used to control the exhaust fan. The Examiner cited DE 2364458 as teaching a lever bar that is connected to both a forced draught fan and an exhaust fan, citing Applicants' disclosure. The Examiner cites Laragione 5,925,829 as teaching the use of flow meters.

As an initial matter, it is interesting that the Examiner relies on DE 2364458 to reject the claims, but indicated that DE 2364458 was not considered in the prior art statement. As requested above, Applicants request consideration of DE 2364458.

Applicants submit that Laragione 5,925,829 is non-analogous art. Laragione 5,925,829 is

directed to an apparatus for determining the rate of gas flow. Laragione 5,925,829 does not disclose the use of the gas flow measurement device in conjunction with a coke oven. Even if Laragione 5,925,829 is analogous art, which it is not, there is no disclosure, teaching or suggestion in Laragione 5,925,829 that a gas flow measurement device can be used to control a forced draught fan or an exhaust fan in a coke oven to reduce or inhibit the flow of gasses out of the coke oven. Applicants submit that the only source of such teachings is Applicants' own invention.

Applicants further submit that the cited references do not disclose, teach or suggest the limitations of amended claim 16. For instance, none of the cited references disclose, teach or suggest 1) a sealing mechanism that at least partially inhibits the flow of gases from the coke oven through the leveler door opening and into the housing which sealing mechanism includes a regulatable exhaust fan connected to the housing to expel gas through an outlet opening in the housing, 2) a flow measuring mechanism that is at least partially positioned in the housing between the coke oven and the outlet opening, and 3) the flow measuring mechanism at least partially controlling the regulatable exhaust fan to control a volume of gas expelled through said outlet opening. For at least these reasons, claim 16 is not obvious in view of the cited references. Applicants also submit that all the claims dependent on claim 16 are not obvious in view of the cited references.

The Examiner made several comments concerning dependent claims 18-23. Applicants have amended claim 18 to clarify the scope of the claim concerning the sealing plates. Applicants submit that the sealing rollers disclosed in Richmond 4,264,263 are not the same as the sealing plates defined in the claims.

B. Independent Claim 24

Claim 24 was rejected under 35 U.S.C. §103(a) as being unpatentable over Richmond

4,264,263 in view of DE 2364458 and Laragione 5,925,829. Claim 24 was also rejected under 35 U.S.C. §103(a) as being unpatentable over Richmond 4,264,263 in view of Trutzchler 3,859,066.

As stated above, Applicants submit that Laragione 5,925,829 is non-analogous art. Applicants also submit that Trutzchler 3,859,066 is non-analogous art. Like, Laragione 5,925,829, Trutzchler 3,859,066 is not directed to the art of coke ovens. Trutzchler 3,859,066 is merely directed to a drum filter. Trutzchler 3,859,066 also does not include any teachings that would motivate one skilled in the art to use the filter device in a coke oven operation.

Applicants further submit that the cited references do not disclose, teach or suggest the sealing mechanism positioned in the housing wherein the sealing mechanism includes a movable sealing element that at least partially seals an inner cross section of the leveler bar between said side segments and wherein 1) at least one movable sealing element includes at least one rotary lock having a pivotable panel wherein the pivotable panel is movable between at least two of the cross segments of the leveler bar or 2) at least one cell wheel has a plurality of panels rotatable about an axis wherein at least one of the panels is movable between at least two of the cross segments of the leveler bar.

For at least these reasons, claim 24 is not obvious in view of the cited references. Applicants also submit that dependent claim 27 is also not obvious in view of the cited references.

C. Independent Claim 29

The Office Action Summary indicated that all the pending claims were rejected; however, the Examiner did not specifically refer to claim 29 in the Office Action. Applicants submit that claim 29 is allowable over the art of record.

D. Independent Claim 30

Claim 30 was rejected under 35 U.S.C. §103(a) as being unpatentable over Richmond 4,264,263 in view of DE 2364458 and Laragione 5,925,829.

As stated above, Applicants submit that Laragione 5,925,829 is non-analogous art.

Applicants submit that claim 30 is allowable over the cited art of record for reasons similar to those discussed above with respect to claim 16.

Applicants also submit that the claims dependent on claim 30 are allowable over the cited art of record for reasons similar to those discussed above with respect to claims 18-23.

E. Independent Claim 46

As stated above, claim 46 was amended to include the limitation of claim 47. Claim 47 was rejected under 35 U.S.C. §103(a) as being unpatentable over Richmond 4,264,263 in view of Trutzchler 3,859,066. As stated above, Applicants submit that Trutzchler 3,859,066 is non-analogous art.

The cited references also do not disclose, teach or suggest a device to at least partially seal a leveler door opening of a coke oven chamber during top charging of the coking coal that includes a sealing mechanism to inhibit the flow of gases from the coke oven through the leveler door opening wherein the sealing mechanism includes 1) at least one movable sealing element to at least partially seal an inner cross section of the leveler bar between the side segments, and 2) wherein the movable sealing element includes at least one pivoting seal and/or at least one cell wheel. For at least these reasons, claim 46 and the claims dependent therefrom are allowable over the cited art of record. Applicants also submit that the dependent claims are allowable for additional reasons as discussed above with respect to several other dependent claims.

F. Independent Claim 65

Claim 65 was rejected under 35 U.S.C. §103(a) as being unpatentable over Richmond 4,264,263 in view of DE 2364458 and Laragione 5,925,829. As stated above, Applicants submit that Laragione 5,925,829 is non-analogous art.

Applicants also submit that claim 65 is not obvious in view of the cited art. The cited art does not disclose, teach or suggest a method for at least partially sealing a leveler door opening of a coke oven chamber during the leveling process wherein 1) the gas flow through the leveler door opening is monitored, and 2) the flow of gas through the leveler door opening is at least partially controlled by regulating a flow the exhausted gas from the housing based at least partially upon the measured flow of gas through the leveler door opening.

For at least these reasons, claim 65 and the claims dependent therefrom are allowable over the cited art of record.

Applicants submit all the claims presently pending in above-identified patent application are patentably distinct from the cited art of record.

Respectfully submitted,
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Sealing device for the levelling opening on a horizontal chamber of a coke oven battery

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Applicant(s): DIDIER ENG (DE)
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Equivalents:

Abstract

A sealing device for the levelling opening (23) on a horizontal chamber (11) of a coke oven battery (10) against the emission of the filling gas arising in the chamber (11) during the charging of the coking coal by a dumping operation has a housing (24) which can be connected to the levelling opening and through which the levelling bar (25) is guided and which is designed to be essentially gas-tight. From this housing (24) a transfer pipe (29) branches off which extends along the coke oven battery (10) up to one of the neighbouring oven chambers (11a) and can be connected by means of a connecting branch to the levelling opening (23) thereof. If appropriate, the connecting branch of the transfer pipe (29) is designed to lead to a second housing (24) through which a second levelling bar (25) is guided. Advantageously, the device is arranged on a pushing machine which can be moved along the coke oven battery.

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